# USING MICROCT FOR LIFE DETECTION IN MINERALS

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Computer Tomography (CT) has been a very valuable tool in medicine, where the best resolution available has typically been of the order of about 0.5 mm. However, to adapt the approach for life detection of microbial endoliths, the resolution needs to be moved to the micrometer and even submicrometer levels. Thus for the studies proposed here, we begin with a commercially available instrument that can yield resolution of approximately **2** μm. The rational for this is twofold: first, this is the "state of the art" in laboratory instruments; and second, that while the usual size of a microbial cell is about 1 micron, microorganisms tend to live in communities that usually exceed the 10 μm size range. The resolution also depends on the sample size itself, so having a small lab instrument into which small samples can be placed will be beneficial to the resolution.

MicroCT can be used not only for life detection in minerals, but also for mineralogical analysis. Recently several approaches were put forward for using CT to analyze elemental composition of rocks. We applied this technique to discriminate between organic and inorganic material inside of sandstone samples with endolithic microorganisms inside.